Canadian Centre for Occupational Health and Safety

Centre canadien d'hygiène et de sécurité au travail

HISTOPLASMOSIS

A Summary of the Occupational Health Concern

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HISTOPLASMOSIS--A SUMMARY OF THE OCCUPATIONAL HEALTH CONCERN

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PREFACE

This publication was prepared as a source of information for health and safety committees and others with an interest in understanding and reducing the occupational risk of histoplasmosis.

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1. THE CAUSE OF HISTOPLASMOSIS

Histoplasmosis is an infectious disease caused by a fungus called Histoplasma capsulatum. This organism thrives in moderate temperatures and moist environments. Droppings from chickens, pigeons, starlings, blackbirds, and bats support its growth. Birds are not infected with it because of their high body temperatures, but they do carry it on their feathers. Bats can be infected because they have a lower body temperature. Bat droppings are not only a soil nutrient for the growth of the fungus, but can also be infectious.

To multiply, histoplasma capsulatum produces small spores called conidia. The conidia of histoplasma capsulatum are only two millionths of a meter in diameter. When these conidia are inhaled they enter the lungs, and start an infection. Many of these infections are easily overlooked because they either produce mild symptoms or none at all. But histoplasmosis can be severe, producing an illness similar to tuberculosis.

2. THE INFECTION

When a person breathes in the conidia of histoplasma capsulatum, the lungs' defense mechanisms attempt to neutralize them. Not all the conidia are neutralized. The ones that avoid the defense start an infection. The infection manifests itself within 5-18 days after exposure, commonly 10 days.

There are five different forms of infection, as follows.

- **Asymptomatic**, which is recognized only by performing medical laboratory tests as the victim is unaware of the infection.
- **Acute disseminated**, which is usually confined to infants and young children. It is marked by fever, cough, exhaustion and enlargement of the liver and spleen.
- **Acute benign respiratory**, which is produced by a heavy exposure to conidia. It is marked by weakness, fever, chest pains, and cough. The severity of the symptoms depends upon the magnitude of the exposure.
- **Chronic disseminated**, which occurs in people with a reduced capacity to fight disease, for example, in patients with cancer of the system producing blood cells and in persons being treated with drugs that suppress the body's defense mechanisms against diseases. The chronic disseminated

form is marked by fever, anemia, hepatitis, pneumonia, inflammation of the lining of the heart cavity, meningitis, and ulcers of the mouth, tongue, nose and larynx.

- **Chronic pulmonary**, which occurs in persons with pre-existing pulmonary diseases such as emphysema. It resembles pulmonary tuberculosis and is more common in males over 40 years of age.

3. HISTOPLASMOSIS IN CANADA

The absolute number of cases of histoplasmosis in Canada at this time is not known. In the St. Lawrence River Valley, where the infection may occur frequently, 20-30 percent of the population test positive. It is estimated that over 50 million people have been infected in North America. About 500,000 persons test positive each year.

4. DIAGNOSIS AND TREATMENT

Confirmation of a histoplasmosis diagnosis often requires laboratory examinations which identify histoplasma capsulatum in sputum or lung biopsy. Blood and skin tests, and x-rays may be performed, but they are only of secondary value in diagnosis.

Most patients who develop histoplasmosis do not require treatment. Some may only require supportive treatment that relieves the symptoms of the disease. Severe symptoms with a large involvement of the lungs require treatment with specific antifungal drugs.

5. OCCUPATIONS AT RISK

Persons whose occupations involve contact with the soil, in particular soil enriched with bird and bat droppings, are at high risk of acquiring infection. They include:

- farmers and poultry keepers, especially when cleaning silos, chicken coops, pigeon roosts and bat-infested lofts
- gardeners and horticulturists using poultry manure as fertilizer
- construction and other workers in earth-moving operations
- workers in road construction, tree-clearing or landscaping
- workers clearing or dismantling contaminated buildings
- workers who monitor bird populations
- workers who have contact with bats or bat caves

Others who may be at risk include archaeologists, geologists and medical laboratory technicians handling cultures of the organism.

6. PREVENTION

Prevention of histoplasmosis depends on avoiding exposure to dust in a contaminated environment. Before anyone cleans chicken coops or other contaminated soil, spraying with water is advisable to reduce dust. Decontamination with 3% formaldehyde has been shown to be effective.

Persons working in contaminated areas should wear masks capable of filtering out the organism. They also should wear protective clothing that can be removed at the site and placed in a plastic bag until washed in hot water and detergent. Boots should be hosed off before leaving the site to prevent the spread of histoplasma capsulatum in cars or at home.

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